



# PATENT SPECIFICATION

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## PROVISIONAL SPECIFICATION.

### Improvements in or relating to Drums for Electric Cables and the like.

We, W. T. HENLEY'S TELEGRAPH WORKS COMPANY LIMITED, of 11, Holborn Viaduct, London, E.C. 1, a British company, and WILFRED CHARLES JACKSON, of 16, Wickham Road, Beckenham, Kent, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to drums which are used for the transport of electric cables and the like, and has for its object to provide an improved drum of this kind which shall be free from the defects of, and offer many advantages over, previously proposed cable drums; which latter have consisted as a rule of two circular wooden end cheeks between which is secured a hollow cylindrical core, wooden lagging or cross battens being nailed across the end cheeks at their peripheries so as to protect a cable or the like wound in position around the core of the drum. With such drums it is necessary, as a rule, in order to unwind a cable from such a drum, not only to remove the whole of the lagging or cross battens therefrom, but also, in order that the drum may be rotated, to pass an axle through the core thereof, and to support the whole in a sufficiently elevated position by means of lifting jacks or the like placed beneath the ends of said axle.

According to the present invention a drum for electric cables and the like comprises a drum proper, adapted directly to receive a length of electric cable or the like, two, preferably circular, end cheeks, rigidly spaced apart coaxially from one another and between which the drum proper may be mounted so as to be rotatable at will, and lagging, or the like, adapted to be secured across the space between said end cheeks so that the drum proper together with a length of cable or the like thereon is contained entirely within a preferably cylindrical, protective casing constituted by said end cheeks and the lagging or the like.

Preferably the end cheeks are of circular configuration and carry each at the centre of its inner face a stub axle adapted to project into a bearing at the centre of each end of the drum proper,

said end cheeks being rigidly spaced apart coaxially at the desired distance from one another by tie bars stiff enough to act also as struts and provided with nuts, keys or the like, upon one of which bars may be mounted slidably and rotatably a guide pulley for use in winding or unwinding a cable or the like, whilst a portion of the lagging, preferably in the neighbourhood of the guide pulley, if provided, is readily removable at will, e.g. when it is desired to unwind a cable from the drum.

Whether or not circular end cheeks be employed, so that the complete drum may be rolled into any required position, it may be desirable that the drum as a whole should be adapted at will to serve as a winch, and for this purpose one or each of the stub axles may be rotatably arranged and adapted to receive a handle, in such a manner that, when said end cheeks are secured against movement and a portion or the whole of the lagging is removed therefrom, a cable may be wound on to, or unwound from, the drum proper by the rotation of the latter by means of the handle or handles.

In some cases, also, the end cheeks, instead of carrying stub axles, may be provided centrally each with a transverse hollow bearing through which and the hollow core and the bearings of the drum proper an axle may be passed. Such an arrangement may be employed conveniently when it is desired to use the complete drum as a winch, the ends of the axle being squared and projecting from the outer face of each end cheek for the engagement of crank handles and the drum proper being keyed in any suitable manner upon the central portion of the axle.

Where it is desired that the improved drum should be collapsible, the drum proper may consist simply of two circular discs having hollow transverse bearings at their centres and a cylindrical core adapted to be secured therebetween, discs being held together by tie bars and nuts; similarly the end cheeks of the outer casing may be held in position by tie bars between two nuts on each of the

threaded ends of which, the end cheeks are clamped near their peripheries said end cheeks being in the form of flat, preferably circular discs having stub axles projecting from their inner surfaces, whilst the lagging preferably consists of a plurality of wooden battens, hinged or otherwise flexibly secured together so that said lagging may be rolled up when removed from the end cheeks; alternatively, a length of suitably flexible metal or other material may be employed as the lagging. Preferably also the end cheeks are divided diametrically, or into quadrants, the two or four portions of each end cheek being hinged together so that they may be folded to lie flat one upon another. Where the end cheeks are divided each into four quadrants, two adjacent sections are hinged together at their meeting edges so as to be foldable in one direction, whilst the two remaining sections are secured to said first mentioned sections each to each, respectively, by means of hinges foldable in the reverse direction.

In all cases it is desirable that means should be provided for the purpose of preventing, when necessary (e.g. during transit) rotation of the drum proper within its protective casing; for example, a plurality of bolts and distance pieces, of which the former are adapted to be tightened in positions such that each projects through one end cheek, the corresponding end of the drum proper and through or alongside one of the distance pieces, which latter may be adapted to be wedged, in order to maintain the correct

spacing, between said members, the bolts serving thus to prevent rotation of the drum proper and also to retain the respective distance pieces firmly in position. It is also desirable that some form of brake (e.g. a lever mounted pivotally upon say that tie bar which carries the guide pulley when provided) be incorporated for use particularly during the unwinding of a cable from the drum. Such a brake may be arranged advantageously so as to serve, when desired, positively to prevent rotation of the drum proper and the outer casing relatively to one another.

It will be observed that, in the case of a cable drum in accordance with the present invention, the protective casing is adapted adequately to serve as all the support necessary when it is desired to rotate the drum proper, whatever may be the position (horizontal or otherwise) of the axis thereof. All that need be done, in order to prepare for removing from, or winding on to, the drum proper a length of cable or the like, is to secure the whole in any desired position and to remove a portion only of the lagging or the like from the end cheeks. Thus the expenditure of time and labour involved by jacking up for rotation an ordinary cable drum and by removing the whole of the lagging or the like therefrom, may be avoided entirely by the employment of drums according to the present invention.

Dated the 18th day of February, 1927.

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## COMPLETE SPECIFICATION.

### Improvements in or relating to Drums for Electric Cables and the like.

We, W. T. HENLEY'S TELEGRAPH WORKS COMPANY LIMITED, of 11, Holborn Viaduct, London, E.C. 1, a British company, and WILFRED CHARLES JACKSON, of 16, Wickham Road, Beckenham, Kent, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to large drums which are used for the transport of heavy electric cables and the like, and has for its object to provide an improved drum of this kind which shall be free from the defects of, and offer many advantages over, previously proposed cable drums;

which latter have consisted as a rule of two circular wooden end cheeks between which is secured a hollow cylindrical core, wooden lagging or cross battens being nailed across the end cheeks at their peripheries so as to protect a cable or the like wound in position around the core of the drum. With such drums it is necessary, as a rule, in order to unwind a cable from such a drum, not only to remove the whole of the lagging or cross battens therefrom, but also, in order that the drum may be rotated, to pass an axle through the core thereof, and to support the whole in a sufficiently elevated position by means of lifting jacks or the like placed beneath the ends of said axle.

According to the present invention a drum for electric cables and the like comprises a drum proper, adapted directly to receive a length of electric cable or the like, two, preferably circular, end cheeks, rigidly spaced apart coaxially from one another and between which the drum proper may be mounted so as to be rotatable at will, and lagging, or the like, adapted to be secured across the space between said end cheeks so that the drum proper together with a length of cable or the like thereon is contained entirely within a preferably cylindrical, protective casing constituted by said end cheeks and the lagging or the like.

Preferably the end cheeks are of circular configuration and carry each at the centre of its inner face a stub axle adapted to project into a bearing at the centre of each end of the drum proper, said end cheeks being rigidly spaced apart coaxially at the desired distance from one another by tie bars stiff enough to act also as struts and provided with nuts, keys or the like, upon one of which bars may be mounted slidably and rotatably a guide pulley for use in winding or unwinding a cable or the like, whilst a portion of the lagging, preferably in the neighbourhood of the guide pulley, if provided, is readily removable at will, e.g. when it is desired to unwind a cable or the like from the drum.

Whether or not circular end cheeks be employed, so that the complete drum may be rolled into any required position, it may be desirable that the drum as a whole should be adapted at will to serve as a winch, and for this purpose one or each of the stub axles may be rotatably arranged and adapted to receive a handle, in such a manner that, when said end cheeks are secured against movement and a portion or the whole of the lagging is removed therefrom, a cable may be wound on to, or unwound from, the drum proper by the rotation of the latter by means of the handle or handles.

In some cases, also, the end cheeks, instead of carrying stub axles, may be provided centrally each with a transverse hollow bearing through which and the hollow core and the bearings of the drum proper an axle may be passed. Such an arrangement may be employed conveniently when it is desired to use the complete drum as a winch, the ends of the axle being squared and projecting from the outer face of each end cheek for the engagement of crank handles and the drum proper being keyed in any suitable manner upon the central portion of the axle.

Where it is desired that the improved

drum should be collapsible, the drum proper may consist simply of two circular discs having hollow transverse bearings at their centres and a cylindrical core adapted to be secured therebetween, said discs being held together by tie bars and nuts; similarly the end cheeks of the outer casing may be held in position by tie bars between two nuts on each of the threaded ends of which, the end cheeks are clamped near their peripheries said end cheeks being in the form of flat, preferably circular discs having stub axles projecting from their inner surfaces, whilst the lagging preferably consists of a plurality of wooden battens, hinged or otherwise flexibly secured together so that said lagging may be rolled up when removed from the end cheeks; alternatively, a length of suitably flexible metal or other material may be employed as the lagging. Preferably also the end cheeks are divided diametrically, or into quadrants, the two or four portions of each end cheek being hinged together so that they may be folded to lie flat one upon another. Where the end cheeks are divided each into four quadrants, two adjacent sections are hinged together at their meeting edges so as to be foldable on to one another, whilst the two remaining sections are secured to said first mentioned sections each to each, respectively, by means of hinges so as to be foldable thereonto, the four sections being thus adapted to be folded in a zig-zag fashion.

In all cases it is desirable that means should be provided for the purpose of preventing, when necessary (e.g. during transit) rotation of the drum proper within its protective casing; for example, a plurality of bolts and distance pieces, of which the former are adapted to be tightened in positions such that each projects through one end cheek, the corresponding end of the drum proper and through or alongside one of the distance pieces, which latter may be adapted to be wedged, in order to maintain the correct spacing, between said members, the bolts serving thus to prevent rotation of the drum proper and also to retain the respective distance pieces firmly in position. It is also desirable that some form of brake (e.g. a lever mounted pivotally upon say that tie bar which carries the guide pulley when provided) be incorporated for use particularly during the unwinding of a cable from the drum. Such a brake may be arranged advantageously so as to serve, when desired, positively to prevent rotation of the drum proper and the outer casing relatively to one another.

A drum for electric cables and the like in accordance with one form of the inven-

tion is illustrated in the accompanying drawings; of which Figure 1 is a sectional plan view and Figure 2 a perspective view of the drum as it appears during the unwinding of a cable or the like therefrom.

As shewn, the improved drum comprises a drum proper, consisting of two end cheeks *a, a* provided centrally each with a bearing *b* and of a hollow cylindrical core *c*, and a protective casing, consisting of two end cheeks *d, d*, provided centrally each with an inwardly projecting stub axle *e* adapted to engage with one of the bearings *b* of the drum proper, and a lagging *f* of wooden battens secured across the space between said cheeks *d, d* at their peripheries; said cheeks *d, d* being rigidly spaced apart laterally by a plurality of bars *g, g*, between nuts *h, h* on the threaded ends of which each cheek *d* is firmly clamped.

A guide pulley *j* is provided on one of the bars *g* for use when winding a cable *k* on or from the drum proper, and on the same bar *g* there is arranged a brake *m* for controlling the rotation of the drum proper about the stub axles *e, e*. In order, however, positively to prevent such rotation, when desired (e.g. during transit) bolts *n, n* are provided which are adapted to be passed as shewn in Figure 1, each through apertures in the cheeks *a* and *d* respectively of the drum proper and of the protective casing; said bolts being secured in position *o*, and serving also each to clamp a removable distance piece *p* (Figure 1) between the cheeks *a* and *d* at each side of the drum.

In the drum illustrated a portion *q* (Figure 2) of the lagging *f* is arranged so as to be removable readily (the remainder of said lagging *f* being permanently secured in position and the protective casing is adapted to serve as a stationary mounting on which the drum proper may be supported rotatably for the purpose of winding or unwinding a cable or the like, as clearly shewn in Figure 2 of the drawings.

It will be observed that, in the case of a cable drum in accordance with the present invention, the protective casing is adapted adequately to serve as all the support necessary when it is desired to rotate the drum proper, whatever may be the position (horizontal or otherwise) of the axis thereof. All that need be done, in order to prepare for removing from, or winding on to, the drum proper a length of cable or the like, is to secure the whole in any desired position and to remove a portion only of the lagging or the like from the end cheeks. Thus the expenditure of time and labour involved

by jacking up for rotation an ordinary cable drum and by removing the whole of the lagging or the like therefrom, may be avoided entirely by the employment of drums according to the present invention.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A large drum for heavy electric cables and the like, comprising a drum proper, adapted directly to receive a length of electric cable or the like, two, preferably circular, end cheeks, rigidly spaced apart coaxially from one another so as to constitute a frame like structure and between which the drum proper may be mounted so as to be rotatable at will, and lagging, or the like, adapted to be secured across the space between said end cheeks so that the drum proper together with a length of cable or the like thereon is contained entirely within a, preferably cylindrical, protective casing constituted by said end cheeks and the lagging or the like, the rigidity of the frame like structure being independent of said lagging or the like.

2. A large drum for heavy electric cables and the like as claimed in Claim 1, wherein the end cheeks are of circular configuration and carry each at the centre of its inner face a stub axle adapted to project into a bearing at the centre of each end of the drum proper, said end cheeks being rigidly spaced apart coaxially at the desired distance from one another by tie bars stiff enough to act also as struts and provided with nuts, keys or the like, and upon one of which bars may be mounted slidably and rotatably a guide pulley for use in winding or unwinding a cable or the like, whilst a portion of the lagging, preferably in the neighbourhood of the guide pulley, if provided, is readily removable at will, e.g. when it is desired to remove a cable or the like from the drum.

3. A large drum for heavy electric cables and the like as claimed in Claim 1 wherein the end cheeks carry each at, or near, the centre of its inner face a stub axle adapted to project into a bearing at the centre of each end of the drum proper, one or each of said stub axles being rotatably arranged and adapted to receive a handle, in such manner that, when said end cheeks are secured against movement and a portion or the whole of the lagging is removed therefrom, a cable or the like may be wound on to, or unwound from, the drum proper by the rotation of the latter by means of the handle or handles.

4. A large drum for heavy electric cables and the like as claimed in Claim 1, wherein the end cheeks are provided centrally each with a transverse hollow bearing through which and a hollow core of the drum proper and bearings therein, an axle may be passed.

5. A large drum for heavy electric cables and the like as claimed in Claim 4, wherein the ends of the axle project from the outer faces of the end cheeks for the engagement of crank handles and wherein the drum proper is keyed to, or otherwise rendered fast upon, the central portion of the axle, in order that the complete drum may be used conveniently as a winch for the winding or unwinding of an electric cable or the like on the drum proper.

6. A large drum for heavy electric cables and the like as claimed in any of the preceding claims, wherein, in order that the whole may be collapsible, the drum proper consists of two circular discs having hollow transverse bearings at their centres and a cylindrical core adapted to be secured therebetween, said discs being held together by tie bars and nuts, and the end cheeks of the outer casing being held in position similarly by tie bars, between two nuts on each of the threaded ends of which, said end cheeks are clamped near their peripheries, and being in the form of flat, preferably circular, discs having at their centres, either stub

axles projecting inwardly from their inner faces, or hollow transverse bearings.

7. A large drum for heavy electric cables or the like as claimed in any of the preceding claims, wherein the lagging consists of a plurality of wooden battens, hinged or otherwise flexibly secured together edge to edge so that said lagging may be rolled up when removed from the end cheeks.

8. A large drum for heavy electric cables or the like as claimed in any of the preceding claims, wherein the end cheeks of the casing are divided diametrically, or into quadrants, the two, or four, portions of each end cheek being hinged together so that they may be folded to lie flat one upon another.

9. A drum for electric cables and the like as claimed in Claim 8, and of which the end cheeks are divided into quadrants, wherein two adjacent sections of each end cheek are hinged together at their meeting edges so as to be foldable on to one another, whilst the two remaining sections, are secured to said first mentioned sections each to each, respectively, by means of hinges so as to be foldable thereonto, the four sections being thus adapted to be folded in a zig-zag fashion.

Dated the 18th day of November, 1927.

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[This Drawing is a reproduction of the Original on a reduced scale.]

